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Journal of the Society of Arts.

FRIDAY, JULY 11, 1856.

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NOTICE TO INSTITUTIONS.

The Council have directed that a copy of the "Hand-book of Mechanics' Institutes, with Priced Catalogue of Books suitable for Libraries," by W. H. I. Traice, be presented to each Institution in Union. Copies have accordingly been this week sent by post.

EXEMPTION FROM RATING.

The Committee in the House of Commons on the Scientific and Literary Societies Bill is deferred till Monday next.

EXAMINATION OF MEMBERS OF CLASSES IN INSTITUTIONS.

We, the undersigned, having considered the Memorandum of the Council of the Society of Arts, and the plan therein set forth, for examining and granting certificates to the students of classes for adult instruction in the Literary and Scientific Institutions, Mechanics' Institutes, Athenæums, and other similar bodies in union with the said Society, do hereby declare that we desire to promote the success of the said plan, and are prepared to regard as *testimonials worthy of credit* such CERTIFICATES as may be awarded in conformity thereto:—

J. B. Cantuar (the Archbishop of Canterbury), The Palace, Lambeth.
Frances Anne Vane Londonderry, Holdernesse-house, Park-lane, London.
Auckland (Bishop of Bath and Wells), Wells, Somerset.
Ashburton, F.R.S., Bath-house, Piccadilly, London.
Feversham, 25, Belgrave-square, London.
Fortescue, Castle-hill, Devon.
Londesborough, 8, Carlton-house-terrace, London.
Lyttelton, 10, Great George-street, Westminster.
S. Oxon (Bishop of Oxford), 26, Pall-mall, London.
C. Winton (Bishop of Winchester), Farnham Castle.

Shelburne, M.P., Lansdowne-house, London.
Ebrington, M.P., Bruton-street, London.
Goderich, M.P., 1, Carlton-gardens, London.
Robert Grosvenor (Lord Robert Grosvenor, M.P.), Park-street, London.
Stanley (Lord Stanley, M.P.), St. James's-square, London.
J. R. G. Graham, Bart., M.P., Netherby, Cumberland.
Stafford H. Northcote, Bart., M.P., Pynes, Exeter.
John Villiers Shelley, Bart., M.P., Park-lane, London, and Mansfield-park.
Edward Pery Buckley, M.P. (President of the Literary and Scientific Institution, Salisbury), Major-General, South Audley-street, London.
De Lacy Evans, Lieut.-General, M.P., 26, Bryanstone-square, London.
Joseph Bailey, Bart., M.P., 26, Belgrave-square, London, and Glanusk-park, Breconshire.
Wentworth Blackett Beaumont, M.P., Bretton-hall, Wakefield.
William Biggs, M.P., Manufacturer, Highfield-house, Leicester.
John Brady, M.P., Warwick-terrace, Belgravia.
William Brown, M.P., Merchant, Richmond-hill, near Liverpool.
H. M. Cairns, M.P., 79, Eaton-place, London.
T. Challis, M.P. (Alderman), Finsbury, London.
Raikes Currie, M.P., Hyde-park-terrace, London.
I. S. W. S. E. Drax, M.P., Charbro'-park, Dorset.
Edward C. Egerton, M.P., 13, Lowndes-square, London.
William Ewart, M.P., Cambridge-square, London.
John Fergus, M.P., Kirkaldy, N.B.
Joseph Ferguson, M.P., 13, Devonshire-place, London.
William Johnson Fox, M.P., 3, Sussex-place, Regent's-park, London.
James Johnstone, M.P., 10, Wilton-place, London.
W. S. Lindsay, M.P., Shipowner, Austinfriars, London.
George Moffatt, M.P., 103, Eaton-square, London.
James Henry Porteus Oakes, M.P., Oxford and Cambridge Club, London
Benjamin Oliveira, M.P., F.R.S., Upper Hyde-park-street, London.
Charles William Packe, M.P., Richmond-terrace, Whitehall, London.
Joseph Paxton, M.P., Sydenham, London.
Apsley Pellatt, M.P., Staines.
Melville Portal, M.P., Laverstoke-house, Hants.
Robert Stephenson, M.P., F.R.S., President of the Institution of Civil Engineers.
William Tite, M.P., F.R.S., 42, Lowndes-square.
Samuel Warren, M.P., Q.C., 35, Woburn-place, London.
W. Wells, M.P., 22, Bruton-street, London.

John F. W. Herschel, Bart., F.R.S., &c., Collingwood, Hawkhurst, Kent.
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Charles Babbage, F.R.S., 1, Dorset-street, Manchester-square, London.
Edward Baines, Editor of the *Leeds Mercury* (and President of the Yorkshire Union of Mechanics' Institutes), Leeds.
Arthur Kett Barclay, F.R.S., F.A.S., F.G.S. (Barclay, Perkins, and Co.), Bury-hill.
Joseph Carne, F.R.S., Penzance.
William Charley, J.P., Seymour-hill, near Belfast.
R. Q. Couch, President of the Penzance Institute.
William Sands Cox, F.R.S., F.R.C.S., Dean of the Faculty, Queen's College, Birmingham.
Davy, John, M.D., F.R.S., Lesketh-house, Ambleside.
Robert Forman, J.P., Derby.
A. W. Hofmann, Ph.D., F.R.S., Royal College of Chemistry, London.
Henry Thomas Hope, 116, Piccadilly, London.
R. W. Jelf, D.D., Principal of King's College, London.
J. W. Lubbock, F.R.S., Banker, High-elms, Farnborough, Kent.
John Mercer, F.R.S., Oakenshaw, near Accrington.
W. Mordey, J.P., Chairman of the Sunderland and South Shields Water Company, Sunderland.
Sampson Payne, Mayor of Southampton.
Robert Pegg, Mayor of Derby.
Wyndham S. Portal, Malshanger, Basingstoke, Hants.
John Stewart, Mayor of Liverpool.
Edward Thring, M.A., Head Master of Uppingham.
W. Williams, M.A., Vicar of St. Bartholomew, Hyde, Winchester.

The Commercial Bank of London (per Alfred R. Cutbill, Manager), Lothbury, London.
The London and Westminster Bank (per J. W. Gilbart, F.R.S., General Manager), Lothbury, London.
Cork and Bandon Railway Company (per H. Williams Wood, Secretary), 17, Gracechurch-street, London.
The Great Northern Railway Company (per J. R. Mowatt, Secretary), King's-cross, London.
The London, Brighton, and South Coast Railway Company (per Frederick Slight, Secretary), London-bridge.
The South Eastern Railway Company (per S. Smiles, Secretary), London-bridge.
Joshua Williams, Manager of Vale of Neath Railway, Neath, Glamorganshire.

The Electric Telegraph Company (per J. S. Fourdrinier, Secretary), Lothbury, London.
The Submarine Telegraph Company (per Fred. Cadogan, Deputy Chairman), 30, Cornhill, London.
Travellers and Marine Assurance Company, Poultry, London.
Price's Patent Candle Company, Belmont, Vauxhall, London, and Liverpool.

G. M. Bell, Secretary, London Chartered Bank of Australia, 17, Cannon-street, City.
John Brown, Banker, 25, Abchurch-lane, City.
Hugh Innes Cameron, Banker, Hyde-park-gate, Kensington-gore.
J. J. Fenton and Sons, Bankers, Rochdale.
Hanburys and Lloyds, Bankers, 60, Lombard-street, London.
Lubbock, Forster, and Co., Bankers, 11, Mansion-house-street, London.
Bank of London (per M. Mashall, jun., Manager), Threadneedle-street.
Willis, Percival, & Co., Bankers, Lombard-street, London.

Armitage Brothers, Merchants, New-street, Huddersfield.
H. Bannermann and Sons, Merchants, Manchester.
Bennoch, Twentyman, and Rigg, Warehousemen, Wood-street, London.
Craven and Harrop, Merchants, Bradford.
John Dillon (of Morrison, Dillon, and Co.), Wholesale Warehouseman, Fore-street, London.
Samuel Fletcher, Son, and Co., Merchants, Manchester.
Foster, Porter, and Co., Warehousemen and Merchants, 47, Wood-street, London.
Frith, Sands, and Co., Merchants, 8, Austinfriars, London.
W. J. Hall, Wharfinger and Merchant, Custom-house-quay, London.
William Hawes, Skinners-place, Size-lane, City.
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Kershaw, Leese, and Co., Merchants, Manchester.
Lea and Perrins, Merchants, Worcester.
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R. W. Kennard, and Co., Iron Merchants, 67, Upper Thames-street, London.
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James M'Laren and Nephews, Merchants, Manchester.
Moffatt and Co., Fenchurch-street, London.
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Potters and Norris, Manchester.
Powles Brothers and Co., Merchants, 17, Gracechurch-street, London.
John Thomas Raworth, Cotton Merchant, Leicester.
Ray, Glaister, and Co., Merchants, 19, Coleman-street, London.
James Shaw and Co., Mill Owners and Merchants, Huddersfield.
Joshua Scholefield and Sons, Merchants, Birmingham.
Springfield, Son, and Nephew, Merchants, 66, Coleman-street, London.
J. Travers and Sons, Wholesale Grocers, 16, St. Swithin's-lane, London.
Matthew Uzielli, Merchant, Hanover-lodge, Regent's-park, London.
Van Wart, Son, and Co., Merchants, Birmingham.
Waters, Lewis, and Co., Merchants, Worcester.
Edward Wood, Merchant, Port-hill, near Burslem.

Thomas Bridgett and Co., Silk Merchants and Manufacturers, Derby.
J. and T. Brocklehurst and Sons, Silk Manufacturers, Macclesfield.
William and Henry Browett, Silk Manufacturers, Coventry.
Campbell, Harrison, and Lloyd, Silk Manufacturers, 19, Friday-street, London.
Samuel Courtauld and Co., Silk and Crape Manufacturers, Braintree, Bocking, Halsted, and London.
Edward Fisher and Co., Silk Spinners, Longroyd-mills, Huddersfield.
John Hall and Son, Silk Throwsters, Orchard-mills, Coggeshall, Essex.
James Houldsworth and Co., Silk Manufacturers, &c., Manchester.
Johnson Brothers, Silk Men, Congleton.
Keith and Co., Silk Manufacturers, 124, Wood-street, London.
Lewis and Allenby, Silk Mercers, &c., 195, Regent-street, London.
Madeley and Frost, Silk Manufacturers, Derby.
W. Rawlinson, Silk Throwster, Taunton, Somerset.
Thomas S. Reed and Co., Silk Manufacturers, Derby.
Thomas R. Shute, Silk Throwster, Watford.
Simpson and Turner, Silk Manufacturers, Derby.
Vavasseur and Rix, Silk Manufacturers, Trump-street, London.
John Woollam, Silk Throwster, St. Alban's.
S. J. Wright and Co., Silk Manufacturers, Derby.
Richard Atkinson and Co., Irish Poplin Manufacturers, College-green, Dublin.

J. L. and C. Bankes, Ribbon Manufacturers, 8, Wood-street, London, and Coventry.
Charles Bray, Ribbon Manufacturer, Coventry.
W. H. and C. Bray, Ribbon Manufacturers, Coventry.
John Cash, Ribbon Manufacturer, Coventry.
John Newman Clarke, Ribbon Manufacturer, Stoke-green, Warwickshire.
S. Hammerton and Co., Ribbon Manufacturers, Coventry.
Hennell, Adams, and Eld, Ribbon and Silk Manufacturers, Coventry and Derby.
Hiffe and Peters, Ribbon Manufacturers, Coventry.
Hood and Ward, Ribbon Manufacturers, Nuneaton.
Henry Newsome, Ribbon Manufacturer, Hertford-street, Coventry.
G. A. Pridmore and Co., Ribbon Manufacturers, Coventry.

Frederick Browett, Trimming Manufacturer, Coventry.

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John Brooke and Sons, Woollen Manufacturers, Huddersfield.
John and Thomas Clark, Woollen Manufacturers, Trowbridge.
Robert S. Davies and Sons, Woollen Manufacturers, Stonehouse, Gloucestershire.
John Dennison and Son, Woollen Manufacturers, Halifax.
Dicksons and Laings, Woollen Manufacturers, Hawick and Glasgow.
Edmonds and Co., Woollen Manufacturers, Bradford, Wilts.
Robert Gill and Son, Woollen Manufacturers, Galashiels and Inverleithen.
John and Edmund Grundy, Woollen Manufacturers, Bury and Manchester.
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Hunt, Barnard, and Co., Woollen Cloth Manufacturers, Strand.
James Johnston, Woollen Manufacturers, Newmill, Elgin, N.B.
Joseph Jubb and Sons, Woollen Manufacturers, Batley, near Dewsbury.
Kelsall and Kem, Woollen Manufacturers, Rochdale.

H. C. M'Crea and Co., Merchants and Manufacturers, Halifax.
Marling, Strachan, and Co., Woollen Manufacturers, Stroud.
Morley, Underwood, and Morley, Woollen Manufacturers, Britannia-mills, Leeds.
George Norton, Manufacturer, Clayton West, Huddersfield.
Joseph Norton, Fancy Woollen Manufacturer, Clayton West, and Huddersfield.
William Playne and Co., Woollen Manufacturers, Minchinhampton, Gloucestershire.
P. P. and C. Playne, Woollen Manufacturers, Nailsworth, near Stroud.
Pocock and Rawlings, Broad Cloth Manufacturers, Chippenham, Wilts.
W. R. Rawson and Co., Woollen Manufacturers, Halifax.
Reid and Taylor, Manufacturers, Langholm.
Samuel Salter and Co., Woollen Manufacturers, Trowbridge.
Kenny Scott and Co., Woollen Manufacturers, Ormonde-mills, Kilkenny.
W. B. and G. Sheppard, Cloth Manufacturers, Frome, Somerset.
John Sibbald and Co., Woollen Manufacturers, Galashiels.
William and John Stancomb, Woollen Manufacturers, Trowbridge, Wilts.
Stanton and Son, Cloth Manufacturers, Stroud.
J. H. Whitehead, Manufacturer and Merchant, Southsyal, Saddleworth.
Peter Wilans and Sons, Woollen Cloth Manufacturers, Leeds, Yorkshire.
Wilson and Armstrong, Woollen Manufacturers, Hawick, and 69, Aldermanbury, London.
John Wilson, Woollen Manufacturer, Ladylaw, Hawick.
J. and T. C. Wrigley, Woollen Manufacturers, Huddersfield.

Joseph Schofield and Co., Fustian Manufacturers, Littleboro', Lancashire.

G. W. Addison and Sons, Worsted Spinners, Bradford, Yorkshire.
James Akroyd and Son, Worsted Manufacturers, Halifax.
William Anderton, Worsted Spinner and Manufacturer, Victoria-mill, Bingley, Yorkshire.
William Atkinson and Sons, Worsted Spinners, Cleckheaton, near Leeds.
Samuel Baines, Worsted Spinner and Manufacturer, Brighouse, Yorkshire.
J. and J. Baldwin, Worsted Spinners, Halifax.
E. and R. W. Blake, Spinners, Norwich.
M. Bottomley and Son, Worsted Spinners and Manufacturers, Shelf-mills, near Halifax.
Alfred Burgess and Co., Worsted and Woollen Manufacturers, Leicester.
Cartwright and Warners, Spinners and Manufacturers of Patent Angola Hosiery, &c., Loughborough.
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John Foster and Son, Worsted Spinners and Manufacturers, Black-dike-mills, near Bradford.
William Geary, Manufacturer, Norwich.
Alexander Hadden and Sons, Worsted Spinners and Carpet Manufacturers, Aberdeen.
Richard Harris and Sons, Manufacturers, Leicester.
E. and F. Hinde, Manufacturers, Norwich, and 82, Watling-street, London.
S. C. Lister and Co., Manufacturers, Manningham-mills, Yorkshire.
Middleton and Answorth, Manufacturers, Norwich.
Robert Milligan, jun. (Walter Milligan and Son), Manufacturer, Harden, Bingley, Yorkshire.
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William Peel and Co., Manufacturers and Merchants, Bradford, Yorkshire.
Rawson, Donisthorpe, and Co., Manufacturers, Leicester.
William Rouse and Co., Spinners, Bradford.
Titus Salt, Sons, and Co., Worsted Spinners and Manufacturers, Saltaire, Bradford, Yorkshire.
James Sugden and Brothers, Worsted Spinners and Manufacturers, Dockroyd, near Keighley, Yorkshire.
Towler, Rowling, and Allen, Manufacturers, Elm-hill, Norwich, and 46, Friday-street, Cheapside, London.
Christopher Wand and Co., Worsted Spinners, Britannia-mills, Bradford, Yorkshire.
Thomas Wheeler and Co., Elastic Web Manufacturers, Abbey-mills, Leicester.
John Whitmore and Co., Worsted Spinners, Leicester.
Edward Willett, Nephew, and Co., Manufacturers, Norwich, and 63, Friday-street, London.

Henry Brinton and Sons, Carpet Manufacturers, Kidderminster.
Joseph Burch and Co., Carpet Manufacturers, Macclesfield.
Samuel Cooke, Carpet Manufacturer, Mill-bridge, near Leeds.
John Crossley and Sons, Carpet Manufacturers, Halifax.
Henderson and Co., Carpet Manufacturers, Durham.
Watson, Low, and Bell, Carpet Manufacturers, 35 and 36, Old Bond-street, London.
Whitwell and Co., Carpet Manufacturers, Kendal.

Ainsworth and Co., Cotton Spinners and Manufacturers, Church-street-mills, Preston.
Ames, Bush, and Co., Spinners and Manufacturers, Great Western Cotton-works, Bristol.
Elkanah Armitage and Sons, Manufacturers, Manchester.
P. R. Arrowsmith and Co., Cotton Spinners, Bolton.
Thomas Barnes and Co., Manufacturers, Farnworth, near Manchester.
Richard Birley and Co., Cotton Spinners, Manchester.
John Bould, Cotton Spinner and Manufacturer, Ovenden, near Halifax.
George Cheetham and Sons, Cotton Spinners and Manufacturers, Stalybridge.
Joseph Clarke and Brother, Cotton Spinners, Phœnix-mill, Ancoats, Manchester.
J. P. Clarke, Cotton Manufacturers, King-street Cotton-mills, Leicester.
Peter Dixon and Sons, Manufacturers of Cotton Goods, Carlisle.
Walter Evans and Co., Cotton Thread Manufacturers, Derby.
Garnett and Horsfalls, Cotton Manufacturers, Low Moor, Clitheroe.
Gartside and Mayall, Spinners, Union-mills, Oldham.
J. and J. L. Gray, Cotton Spinners, Ancoats, Manchester.
Thomas Haigh and Sons, Cotton Spinners and Doublers, Colne-bridge-mills, near Huddersfield.
Horrockses, Miller, and Co., Manufacturers, Preston.
William Horsfall and Son, Cotton Spinners, Hebdenbridge.
Kingston Cotton-mill Co. (per Francis Gleddon, managing director), Cotton Spinners, Hull.
Langworthy Brothers and Co., Spinners and Manufacturers, Greengate-mills, Manchester.
John Paley and Co., Cotton Spinners and Merchants, Preston, Lancashire.
Charles Pooley, Spinner, Manchester.
John Pooley and Son, Cotton Spinners, Manchester.
Samuel Radcliffe and Sons, Spinners, &c., Rochdale, Oldham, and Manchester.
Joseph Rowland and Son, Spinners and Manufacturers, Oldham.
William Sidebotham, Cotton Manufacturer, Hyde, near Manchester.
Thomas Taylor and Brother, Cotton Spinners, Wigan.
Tillard and Co., Cotton Spinners, Wilne-mills, near Derby.

Joseph Thompson and Son, Cotton Manufacturers, Ardwick, Manchester.
John Whittaker and Sons, Cotton Spinners and Manufacturers, Hurst-mills, near Ashton-under-Lyne.

Thomas Ainsworth, Flax Spinner, Penny-bridge, Ulverstone and Cleator, Whitehaven.
Benyon and Co., Flax Spinners, Leeds.
Carter Brothers, Linen Manufacturers, Barnsley.
Clark, Plummer, and Co., Flax Spinners, Newcastle-upon-Tyne.
William Cowan and Co., Flax Spinners and Manufacturers, White Abbey, Belfast.
Dunbar, McNaster, and Co., Flax Spinners, Linen and Thread Manufacturers, Gilford, Co. of Down, Ireland.
German, Petty, and Co., Flax Spinners, Preston.
William B. Houldsworth and Co., Flax Spinners, Leeds.
Marshall and Co., Flax Spinners, Leeds.
James Murland, Flax Spinner and Manufacturer, Castlewellan, Ireland.
Richardson and Co., Bleachers and Flax Spinners, Lisburn.
James N. Richardson, Son, and Owden, Flax Spinners, Bessbrook, near Newry, Ireland.
J. G. Stuart, Flax Spinner, Balgonie, Markinch.
Erskine Beveridge, Manufacturer of Table Linen, &c., Dunfermline.
Auld, Berrie, and Mathieson, Manufacturers of Muslins, Glasgow.

Ferguson Brothers, Dyers and Finishers, Holme Head-works, Carlisle.
Alexander Harvey and Son, Dyers, Glasgow.
Archibald Orr, Ewing, and Co., Turkey red Dyers and Calico Printers, Glasgow and Bonhill, Dumbartonshire.
Charles Swaisland, Calico Printer, Crayford, Kent.
J. W. George and Co., Stuff Dyers, Leeds.

Adams, Page, and Co., Lace Merchants, Nottingham.
Ayer and Miller, Merchants, Nottingham.
Thomas Ball and Co., Lace Manufacturers, Nottingham.
Copestake, Moore, Crampton, and Co., Lace Manufacturers, Bow Church-yard, and Nottingham.
Elliott and and Cragg, Lace Thread Manufacturers, Island-street-mills, Nottingham.
William Felkin, F.L.S., Manufacturer of Lace and Hosiery, Nottingham.
J. and H. Hadden and Co., Manufacturers, Nottingham.
Heymann and Alexander, Merchants, Nottingham and Bradford.
B. H. Hine, Mundella, and Co., Manufacturers of Hosiery and Lace, Nottingham.
John Thackeray and Son, Lace Thread Manufacturers, Forest-mill, Radford, Nottingham.
John Sowle and Co., Cotton and Lace Manufacturers, Draycott and Bruordash-mills, near Derby.
William Vickers, Lace Manufacturer, Nottingham.
Wild and Bradbury, Lace Manufacturers, Nottingham.

W. and R. Balston, Paper Manufacturers, Maidstone.
James Durham and Sons, Paper Makers, Palerno Paper-works, Currie.
Henry Hall, Paper Manufacturer, Horton Kirby, near Dartford.
Thomas and John Hollingworth, Paper Manufacturers, Turkey-mill, Maidstone.
Alexander Pirie and Sons, Paper Mannfacturers, Stoney-wood-works, near Aberdeen.
Thomas Harry Saunders, Paper Manufacturer, Dartford, Kent.
William Sommerville, Paper Maker, Bitton, near Bristol.
Charles Venables, jun., Paper Manufacturer, "Cliefden," "Taplow," "Soho," and "Prince's" Paper-works, near Maidenhead.

Thomas De la Rue and Co., Manufacturing Wholesale Stationers, 110, Bunhill-row, London.
Jennens and Bettridge, Papier Mâché Manufacturers, London and Birmingham.
Robert Besley and Co., Type Founders, Fann-street, Aldersgate-street, London.

Bradbury and Evans, Printers, Whitefriars, London.
William Clowes and Sons, Printers, Stamford-street, London.
Neil and Co., Printers, Edinburgh.
W. and R. Chambers, Publishers, Edinburgh.
Charles Knight, Publisher, Fleet-street, London.
Longmans, Brown, and Co., Publishers, Paternoster-row, London.

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Leonard Boult and Co., Proprietors of Easton Colliery, Bristol.
G. S. Ford and Sons, Colliery Proprietors, Pyle, near Taibach, Glamorganshire.
Joseph Pease, Coal Owner and Coke Burner, Southend, Darlington.
Thomas Phillips, Knt., Colliery Proprietor, Newport, Monmouthshire, and Temple, London.

Charles Bagnall (of Bagnall and Sons), Iron and Coal Master, West Bromwich.
John Brogden and Sons, Iron Masters, Tondû Iron Works, Glamorgan.
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The Butterley Company, Iron and Coal-works, Alfreton.
The Coalbrookdale Company (per Charles Crookes), Iron Masters and Founders, Coalbrookdale, Staffordshire.
The Derwent Iron Company, Iron Masters, Consett, near Gateshead.
Gwendraeth Iron and Coal-works, Pembray.
Hird, Dawson, and Hardy, Iron Masters, Low Moor Iron-works, Bradford, Yorkshire.
The Kirkstall Forge Company, Iron Masters, Kirkstall Forge, Leeds.
R. P. Lemon and Co., Iron Masters, Maesteg, Glamorganshire.
William Mathews, Iron and Coal Master, Corbyn's-hall Iron-works, Dudley.
Monkland Iron and Steel Company, Manufacturers of Iron, 160, West George-street, Glasgow.
J. M. Paull, Moor Master to the Commissioners of Greenwich Hospital, Alston, Cumberland.
William Thomas Scarth, Agent to the Duke of Cleveland and Dowager Duchess of Cleveland, Stevenstone, near Darlington.
Jacob Walton, Mine Proprietor, Alston, Cumberland.
Philip Williams and Sons, Iron Masters and Colliery Owners and Workers, Tipton.

W. G. Armstrong and Co., Engineers, Newcastle-upon-Tyne.
I. K. Brunel, F.R.S., Civil Engineer, Westminster.
William Cubitt, Knt., F.R.S., Engineer, Great George-street, London.
Charles May, F.R.S., Great George-street, Westminster.
George Elliot, C.E., Mining Engineer, Houghton-hall, Co. of Durham.
William Fairbairn, F.R.S., Manchester.
Fairbairn and Sons, Engineers, Manchester.
Joseph and James Fox, Engineers and Machine Makers, Derby.
Fox, Henderson, and Co., Engineers and Contractors, London and Birmingham.
R. and W. Hawthorn, Engineers, Newcastle-upon-Tyne.
Benjamin Hick and Son, Engineers, Bolton, Lancashire.
John Hick, Engineer, Bolton, Lancashire.
Humphrys, Tennant, and Dykes, Marine Engineers, Deptford.
Lloyds, Fosters, and Co., Engineers, Wednesbury.

Charles Manby, F.R.S., Secretary to the Institution of Civil Engineers, Great George-street, London.
Pontifex and Wood, Engineers, Coppersmiths, &c., Shoe-lane and Millwall Chemical-works, London; and Garratt Copper-mills, Surrey.
J. M. Rendel, F.R.S., Engineer, Great George-street, London.
J. Scott Russell, F.R.S., of Scott Russell and Co., Millwall, London.
Sandys, Vivian, and Co., Merchants and Steam Engine Manufacturers, Hayle, Cornwall.
Chas. Shepherd, Engineer, Cwmdu Iron-works, Bridgend.
Sharp, Stewart, and Co., Engineers, Manchester.
Thomas Sopwith, F.R.S., Civil Engineer, Allenheads, Newcastle-on-Tyne.
Stothert, Slaughter, and Co., Engineers, Bristol.
Summers and Day, Engineers and Iron Shipbuilders, Southampton.
John Taylor and Sons, Engineers, 6, Queen-street-place, Thames-street, London.
Robert Wood and Sons, Millwrights and Engineers, Larchfield-foundry, Leeds.

Barrett, Exall, and Andrewes, Engineers and Ironfounders, Katespore Iron-works, Reading.
T. and C. Clark and Co., Ironfounders, Wolverhampton.
Clayton, Shuttleworth, and Co., Engineers, Stamp-end Iron-works, Lincoln.
Garrett and Co., Agricultural Engineers, Leiston-works, Suffolk.
Andrew Handyside and Co., Ironfounders and Engineers, Derby.
James and Frederick Howard, Ironfounders and Manufacturers of Agricultural Implements, Bedford.
Ransomes and Sims, Ironfounders and Engineers, Ipswich.

John Abbot and Co., Iron-works, Gateshead-on-Tyne.
Broun, Lenox, and Co., Anchor and Chain Cable Manufacturers, Millwall, Poplar, London, and Newbridge-works, Pontypool, Glamorganshire.
Guest and Ghrimes, Brass-works, Rotherham.
Martineau and Smith, Birmingham.
Edward Perry (Mayor of Wolverhampton), Japanner and Tinplate Worker, Jeddo-works, Wolverhampton.
Richard Perry and Son, Japanners and Tinplate Workers, Temple-street, Wolverhampton.
Ready and Meynell, Gasfitting Manufacturers, Plumbers, and Brassfounders, Wolverhampton.
Frederick Walton and Co., Manufacturers, Old Hall-works, Wolverhampton.

James Davenport, Machine Maker, Rochdale.
John M. Dunlop and Co., Machine Makers, Manchester.
Fairbairn, Greenwood, and Battey, Machinists, Leeds.
William Higgins and Sons, Machinists, Salford, Manchester.
Maclea and March, Machinists, Leeds.
Manlove, Alliott, and Co., Hydro-Extractor Manufacturers, Bloomsgrove-works, near Nottingham.
Platt Brothers and Co., Machine Makers, Oldham, Lancashire.

Joshua Buckton and Co., Engineers' Tool Makers, Well-house-foundry, Leeds.
George Fisher and Co., Steel and File Manufacturers, Hoyle-street-works. Sheffield.
Shepherd, Hill, and Spink, Machine Tool Makers, Leeds.
Slack, Sellars, and Grayson, Saw Manufacturers, &c., Townhead-street, Sheffield.
Smith, Beacock, and Tannett, Machine Tool Makers, Leeds.
Spear and Jackson, Steel and Tool Manufacturers, Etna-works, Sheffield.

G. E. Donisthorpe and Co., Top and Noil Manufacturers, Larchfield-mill, Hunslet, Leeds.

James Dixon and Sons, Manufacturers of Plated and Britannia Metal Wares, Sheffield.
William Fawcett (Mayor of Sheffield), Manufacturer of Plated and Britannia Metal Wares, Sheffield.
Hilliard and Chapman, Cutlers, Glasgow.
Joseph Rodgers and Sons, Cutlery Manufacturers, 6, Norfolk-street, Sheffield.
John Jobson Smith, Manufacturer, Roscoe-place, Sheffield.
Joseph Gillott, Steel Pen Manufacturer, Victoria-works, Birmingham.
William Mitchell, Steel Pen Manufacturer, Birmingham.
William Bartleet and Sons, Needle and Fishhook Manufacturers, Redditch, Worcestershire.

George Bacchus and Sons, Glass Manufacturers, Birmingham.
Chance Brothers and Co., Glass-works, Birmingham.
James Hartlay and Co., Glass Manufacturers, Sunderland.
Molineaux, Webb, and Co., Flint Glass Manufacturers, Manchester.
Pellatt and Co., Glass Manufacturers, Blackfriars, London.
Richard and William, and William Pilkington, jun., Crown, Sheet, and Plate Glass-works, St. Helen's, Lancashire.
R. W. Swinburne and Co., Glass Manufacturers, South Shields, and Newcastle-on Tyne.
The Thames Plate Glass Company (per Joseph Brown, Director), London.

Stephen Green, Manufacturer of Stone Ware, Imperial Potteries, Lambeth.
W. H. Kerr and Co., Royal Porcelain-works, Worcester.
T. J. and J. Mayer, Earthen and China Ware Manufacturers, Dale-hall Pottery, Longport, Staffordshire.
Herbert Minton and Co., China and Earthenware Manufacturers, Stoke-on-Trent.
Samuel Moore and Co., Earthenware Manufacturers, Sunderland.
John Ridgway, China Manufacturer, Cauldron-place, Staffordshire Potteries.
Josiah Wedgwood and Sons, Potters, Etruria, Staffordshire.

Ashby and Horner, Builders, 7, Aldgate, London.
Thomas Brassey, Contractor, Adam-street, Adelphi, London.
William Eassie, Contractor, Gloucester.
J. and C. I'Anson, Builders, Cirencester-place, Mary-le-bone, London.
Henry Lee and Son, Contractors, Belvedere-road, Lambeth, London.
Lucas Brothers, Contractors, Belvedere-road, Lambeth, London.
George Myers, Builder, Ordnance-wharf, Lambeth, London.
Samuel Morton Peto, Bart, Contractor, Great George-street, Westminster.
John Wood, Builder, 13, Blenheim-place, Leeds.

Cookes, Sons, and Meeres, Cabinet Makers, Warwick and Leamington.
J. G. Crace, House Decorator, 14, Wigmore-street, London.
Gilbert J. French, Manufacturer of Church Furniture, Bolton, Lancashire.
Holland and Sons, Upholsterers, 23, Mount-street, Grosvenor-square, London.
Jackson and Graham, Cabinet Makers, Oxford-street, London.

William A. Adams and Co., Railway Carriage Builders, Birmingham.
Richard Andrews, Coachmaker, Southampton.
Brown, Marshall, and Co., Railway Carriage and Waggon Builders, and Contractors, Britannia Carriage-works, Birmingham.

Herbert and Arthur Holmes, Coach and Harness Makers, Derby, Lichfield, and London.
Joseph Wright and Sons, Railway Carriage Builders, Saltley-works, Birmingham.

R. A. Macfie, Sugar Refiner, Liverpool.
Arthur Guinness, Son, and Co., Brewers, Dublin.
Henry Meux and Co., Brewers, St. Giles's, Middlesex.
Truman, Hanbury, Buxton, and Co., Brewers, Spitalfields, London.
Castles and Co., Distillers, Milk-street, Bristol.
Smith and Co., Distillers, Whitechapel Distillery, London.
Hill, Evans, and Co., British Wine and Vinegar Makers, Worcester.
Brown and Polson, Starch Manufacturers, Paisley.
J. and J. Colman, Manufacturers of Mustard, Starch, British Gum, &c., Stoke-mills, Norwich.
Joseph Martin, Rice and Corn Miller, North Shore-mills, Liverpool.
Blundell, Spence, and Co., Colour Manufacturers and Seed Crushers, 9, Upper Thames-street, London, and Hull.
Dixon and Cardus, Linseed Crushers and Artificial Manure Manufacturers, Northam, Southampton.
Warren S. Hale and Sons, Stearine and Composite Candle Manufacturers, 71, Queen-street, City.

S. P. Austin, Shipbuilder, Sunderland.
Alexander Hall and Co., Shipbuilders, Aberdeen.
James Laing, Shipbuilder, Sunderland.
John Laird, Shipbuilder, Birkenhead.
Thomas and William Smith, Shipbuilders, Newcastle-on-Tyne.
W. O. Young, Ship Broker and Owner, Sun-court, Cornhill, London.
Dunlop and Schoales, Shipping Agents, Southampton.
J. R. Stebbing and Co., Nautical and Mathematical Instrument Makers, Southampton.
C. F. Hancock, Goldsmith, 39, Bruton-street, Berkeley-square, London.
Peter Lawson and Son, Seedsmen, Edinburgh, and Great George-street, London.

INDURATING MARBLE OR STONE.

An invention has lately been patented by Mr. H. C. Page, for indurating marble and stone, so as to render them impervious to astmospheric changes, the action of smoke, grease, and such liquids as usually stain marble and stone, and also to render them less quickly acted upon by acids. The object of the invention is to preserve the beauty, colour, and value of the marble and stone, as well as its sharpness when sculptured. The indurating or preparing process may also be adapted to the fixing of colouring matters applied to marble or stone, for producing an ornamental pattern or design upon it. The marble or stone, thus prepared, is said, in practice, to be better adapted for writing upon—that is, cutting letters in marble and stone, and afterwards colouring or gilding them. The colouring matters employed will neither spread nor become absorbed by the stone.

The mode of indurating light-coloured stone and marble is described as follows:—With a clean soft brush or sponge the surface of the marble or stone is wetted with a solution composed of two parts of lime and one part of pearl-ash. The stone is exposed to a gradual heat until it is perfectly dried through, and until it has become sufficiently hot to melt white bees-wax, which is passed quickly over the surface, using either lump-wax or flake-wax, as in practice may be found most desirable. Should the stone or marble be very porous, it may then be necessary to pass the wax two, three, or more times over the surface; and if such surface be polished it should be cleaned off by rubbing with a dry soft rag while the stone is warm, until the surface is perfectly clean and free from dirt and surplus wax. The stone is then cooled by pouring cold water thereon, and when cold, is finished. Marble and stone prepared or indurated by the above process is said to resist the most penetrating oils or staining liquids. Great care should be taken, when the solution is first applied, to have the surface of the marble or stone perfectly clean and free from dirt and dust; at the same time, it is immaterial whether or not the stone be perfectly dry. Care should also be taken while heating the stone for the second or waxing process that no soot, smoke, or grease come near it; the operator should also avoid touching the surface with his hands, as even the moisture from them would leave an indelible mark or stain. Care should also be taken to have the wax as pure as possible, otherwise the stone will be liable to change colour after a time.

The process adopted for producing a variegated pattern or device in colours on marble and stone is as follows:—The surface of the marble or stone to be operated upon should be clean and fine, but not polished. The colouring matters are applied to the surface, and are disposed and arranged, according to the taste and skill of the artist, in imitation of coloured marble, or any particular pattern or device. After this, the stone is subjected to a sufficient degree of heat to melt wax when applied to it, as before stated; and when so applied, the colouring matter, it is stated, will become perfectly fixed, and remain so for an indefinite period of time, without fear of spreading or intermixing of the colours one with the other. When it is desired to preserve the natural colour of any part of the surface of marble or stone, in the production of a variegated pattern or device, there is applied to the entire surface of the marble or stone the solution of potash and lime, as before described, followed by heating, as before stated. White wax is then applied to those parts of the surface of the marble or stone which it is desired to preserve in its original colour, and to the other parts of the surface of the marble or stone, and while warm, the colouring matters necessary to produce the desired pattern or device are applied.

In operating with such colours as would be prejudicially affected by heat, it will be necessary that the marble or stone should be allowed to become cold before applying such colours; after which the stone is again heated, more wax is passed over the entire surface thereof, the surface cleaned, and the process is finished.

The method practised for indurating common stone-work generally is described as follows:—Dissolve one pound of calcined beeswax in one gallon of coal-tar naphtha, and with an ordinary painter's brush pass the above solution repeatedly over the surface of the stone so long as the stone will absorb it, and until the pores are filled. Should the stone be unusually porous, it will then require the solution to be run quickly over the surface three or four times in succession, using the solution proportionately thicker for coarse stone than for fine stone. The surface is then cleaned with pumice stone or other fine grit and clean water, and the process is finished. When it is desired to preserve the natural colour of any particular part of the surface of common stone in operating thereon, to produce a variegated pattern or device, the inventor applies to those parts of the surface the solution of coal-tar-naphtha and wax beforementioned; the colouring matters are then applied to the other desired parts of the surface of the stone, and, finally, the solution of coal-tar-naphtha and wax is again poured over the surface; the surface is afterwards cleaned off, and the process is then finished. The process in this instance is conducted without the aid of heat, and it must be observed that the above method of indurating stone, where heat is used, will not apply to marble or limestone, or any other description of stone that contains a large quantity of lime for its basis. In operating upon these qualities of stone when very delicate in colour, the indurating process requires that double-distilled camphine be substituted in place of the coal-tar-naphtha, the camphine being mixed with the wax in the proportion of one gallon of camphine to each pound of white wax. When the colour of the stone is not delicate, then the ordinary camphine of commerce will answer the purpose.

Stone and marble indurated by the above process is stated to be well adapted for all kinds of ornamental carving and letter cutting, the stone being less liable to chip than heretofore, and further, in lieu of its being necessary to use a delicate camels' hair brush and spirit varnish to fill in the letters, oil colours may be employed, dashed indiscriminately over the stone, and the surface afterwards simply cleaned, thus rendering the operation of letter writing or colouring on stone and marble more simple, expeditious, and durable than heretofore.

BRUSSELS ECONOMIC EXHIBITION.

The *Journal of the Society of Arts* of May 23rd, 1856, announced that, through the exertions of M. Ducpétiaux, and a few other eminent individuals, seconded by the Belgian Government, an Exhibition would be opened at Brussels on the 25th August, to comprise all articles and appliances calculated to improve the physical and intellectual condition of the working-classes.

This Exhibition will form the foundation of a permanent museum.

The Committee appointed by the Council of the Society of Arts in furtherance of a movement so important to the welfare of the industrial population, is receiving very satisfactory intelligence of the co-operation of various continental countries; and the increasing interest which is evinced among English producers, will render acceptable the following abstract of the Brussels programme:—

Class I.—Buildings of every Description, erected for the use of the Working Classes.—Models, plans, and drawings to scale,* of every description, will, in this section, take the place of bulky objects. It is particularly desirable that the exhibitors should give full explanations and exact specifications, as well as particulars with regard to the results obtained in the case of existing buildings. (A.) *Architecture.*—General external and internal arrangements of buildings of every description, existing or proposed, for the use of the working-classes, such as town and country dwellings for families; furnished model lodging-houses for single men or single females; groups of dwellings, *quartiers* of the working-classes, *cités ouvriers;* schools, alms-houses, *crèches,* or public nurseries, and infant schools; public baths and wash-houses, for small and large towns; economic soup-kitchens, &c. (B.) *Building Details.*—Foundations; means for preventing damp; masonry, carpentry, iron-mongery; water supply; pavement; flooring; doors and windows, with their accessories, such as hinges, irons, locks, &c.; sinks, sewers, traps, water-closets; purification, supply, and distribution of water; tanks, pipes, filters, stop-cocks, &c.; chimneys, appliances for ventilation; dust-holes; safes; roofing; woodwork and coverings. Appliances for preventing fires: fireproof flooring and stairs; plans for scaffolding, combining safety, convenience, simplicity, and economy. (C.) *Building Materials.*—New materials, or materials insufficiently known; new applications of known materials, *e.g.*, of iron instead of wood; bricks, tiles, tiles for flooring, &c., improved as to material and form; hollow bricks, for various uses, &c.; cheap substitutes for stone, &c.; plasters, mortars, cements, hydraulic cement; bitumens, either for direct use, or for indurating and rendering waterproof sandstone, felt, &c.; wood for timber-work, indigenous and exotic; wood prepared with a view to render it incorruptible or incombustible; wood stained and polished to supersede painting; metals, and especially iron and zinc, as an important element in buildings of all kinds; galvanised, enamelled iron, &c.; articles of glass; cheap ornaments; materials and appliances for painting, white-washing, &c.

Class II.—Furniture and Household Articles.—1. *Heating:* Stoves for heating one or several rooms; cooking-stoves, and ovens with their accessories, coal-scuttles, shovels, tongs, &c.; natural and artificial fuels. 2. *Lighting:* Lamps, candlesticks, lanterns, &c.; oils, candles, and any cheap materials for lighting. 3. *Washing:* Economic apparatus for washing linen, for drying, &c.; ironing appliances of all kinds. 4. *Household Utensils:* for the kitchen, including crockery, &c. 5. *Furniture:* Stools, chairs, &c.; tables, presses, cup-boards, lockers, shelves, &c.; paper-hangings, curtains, blinds, looking-glasses, clocks, prints in frames, &c. 6. *Bedding:* Beds, hammocks, bedding, vegetable stuffing for mattrasses, sea-grass or Zostera, &c., as economic substitutes for wool or hair. 7. *Cleanliness. Hygiene:* Washing-stands, basins, tubs, mats, brushes, brooms, &c.; soap, materials for cleaning, articles of iron-mongery, &c.

Besides cheapness, neatness of pattern, and strength, furniture and household utensils destined for the working-classes should display ingenious adaptation for their special purposes. Thus, with regard to the appliances for heat and light, it will be necessary to take into consideration the system of combustion and safety against accident from fire. The utensils for the preparation of food should present no sources of unhealthiness. As to furniture, crockery, &c., simplicity ought to be combined with taste. The question as to healthiness is of particular importance in regard to articles of bedding, &c.

Class III.—Clothing and Linen.—1. Specimens of Woven Fabrics: Cotton, flax and hemp, wool, hair, mixed fabrics. 2. Specimens of Linen: Body and household linen. 3. Ready-made Clothes: For men, women, and children. 4. Coverings for the Head: Ditto, ditto. 5. Coverings for the Feet: Ditto, ditto. 6. Haberdashery: Stockings, waistcoats, drawers, gloves, &c. 7. Other Articles connected with Dress: Dreadnoughts, umbrellas, &c. 8. Watches, ornaments, &c. 9. Materials and appliances for making, mending, and preserving clothing and linen.

Class IV.—Food and Preparation of Food.—1. Grain, groats, flour, maccaroni, &c. 2. Vegetables and roots. 3. Preserved and dried fruits. 4. Sugars, syrups, coffee, tea, chicory. 5. Oil, vinegar, salt, pepper, spices. 6. Beverages. 7. Butter, cheese, eggs, honey. 8. Dried, salted, and smoked meat. 9. Dried, salted, and smoked fish. 10. Preserved articles of food in general. Particular attention will be paid to nutritive substances which have not yet been used as food, or which might become useful subsidiary resources and substitutes for food. In this class are also comprised:—1. Means for restoring to a wholesome condition, or for making a wholesome use of, provisions in a tainted or rancid state. 2. Easy and cheap means for detecting adulterations and frauds of alimentary substances. 3. Means for purifying water. 4. Improvements in grinding, and in the preparation of bread, by which these processes may be made cheaper, and the bread rendered better and easier to preserve. 5. Processes and mixtures, with a view to substitute matters equally wholesome, for grain-flour in the preparation of bread. 6. Improvements in the making of butter, cheese, and other preparations of milk. 7. Cheap processes for the preservation of food, &c., capable of being carried out in the households of the working classes. 8. Eligible substitutes for coffee, tea, and other articles of beverages.

Class V.—Tools and Implements used in Manual Labour. Hygiene of Trades and Occupations.—This class comprises all articles used by the working classes in their various occupations, from the spade of the labourer to the plane of the joiner; from the lace-pillow to the needle and the pin. It is desirable to compare the tools and implements of manual labour used in different countries, so as to establish their respective advantages. In the same class are arranged improved sanitary appliances, and means for preventing accidents, injuries, and diseases, to which the working classes are exposed in their various occupations.

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* **Plans, models, and drawings, ought to be, as far as practicable, executed on the metrical scale.**

Class VI.—Religious Worship: Physical, Moral, and Intellectual Education. Recreations.—This class comprises everything relating to the wants of the moral and intellectual life of families and individuals. This includes—I. *Worship, Education, and Instruction.*—*a.* Articles specially relating to domestic worship, religious books, &c. *b.* Apparatus, furniture, and appliances for schools. *c.* Materials for Teaching: Slates, paper, pens, ink, inkstands, penknives, pencils, crayon-holders, rulers, compasses, &c. *d.* Globes, charts, diagrams, plans, engravings. *e.* Books, periodicals, almanacks. II. *Recreations.*—*a.* Music: Simple and easy books, cheap musical instruments for popular use, collections of songs and popular music. *b.* Cultivation of Flowers: Tools and appliances used in gardening, &c. *c.* Gymnastics: Systems and apparatus suitable for adults and children of both sexes. *d.* Games: Cheap playthings of an educational character; popular games.

Every article should have special relation to the wants, habits, and resources of the poorer classes.

The Exhibition will be opened on the 25th of August, and closed on the 5th of October.

Space being limited, very bulky articles, or large collections, cannot be admitted. Exhibitors should limit themselves to sending a single specimen of each article.

In favour of this Exhibition, the Belgian Minister of Finance has consented to admit foreign articles duty free into the building. Duty will only be paid in case the articles should be sold, for which sale the Commission for the Exhibition will give every facility and assistance.

The Minister of Public Works has also been pleased to grant a remission of 50 per cent. upon the charge of transport by the State railways, for articles intended for the Exhibition.

Contributions may be consigned to Messrs. Mertens, Trupel, and Co., 8, Catherine-court, Seething-lane, London, the agents of the Belgian Commission. If the articles contributed are to be returned to England at the close of the Exhibition, the expense of the conveyance to and from Brussels will be charged to the contributors, at the rate of 1s. per cubic foot to Brussels, and the same for the return. On the other hand, if the articles are consigned as donations to the Belgian Government for remaining permanently exhibited in the intended Belgian Economic Museum, no trouble or expense will be incurred by the contributors beyond the delivery of their goods to Messrs. Mertens and Co.

As a large number of leading men of various countries have been invited to attend the Conferences at Brussels during the Exhibition, very extensive publicity will be secured for all the articles exhibited.

It is desirable that no time should be lost in applying to Messrs. Mertens and Co. for forms, to be filled up with information for insertion in the catalogue.

THE EXHIBITION OF ART TREASURES OF THE UNITED KINGDOM.

The approved design for the Exhibition Building to be erected in Manchester is now on view at 23, Cockspur-street. Mr. Young, who is constructing the Buildings for the Royal Commissioners at Kensington Gore, is the successful competitor, and he has undertaken to complete the building at Manchester by New Year's Day, for £24,500. It will cover rather more than three acres of ground, which compared to the 19 acres of the Great Exhibition, and the like area of the Crystal Palace, will make it appear but a small structure. Additional room will, however, be afforded by the construction of galleries. The extreme length of the building will be 704 feet, and the extreme breadth 200 feet. The materials employed will be for the most part cast and corrugated iron, glass being used only in the centre of each compartment of the roof. The whole of the interior will be lined with wood, while the end appropriated for the grand entrance will be of ornamental brickwork. The walls on which the pictures will be hung will thus be quite safe, and free from all damp. The *coup-d'œil* of the nave is expected to be very effective and imposing, with its trophies of old armour, costumes, implements of chase, banners, and antiquities, illustrative of English life and history in bygone times, from the time of Queen Victoria to the time of Queen Anne—from the time of Queen Anne to the time of Queen Elizabeth, and Henry VIII., and Edward III., and William the Conqueror; with mediæval remains, even to the antiquities of the remotest period of our history. There will also be groups of sculpture, with its thousand objects in stone, marble, alabaster, plaster, wood, ivory, terra cotta, and bronze. There will also be decorative furniture, with all the art luxuries of material life, and goldsmiths' work, and all the curious devices wrought in precious metals; glass—Venetian, German, French, and English; china, delf, and tapestry. In addition there will be the great picture gallery, with a fair prospect of that most important, but rarely attained desideratum, good lighting. A site, excellent in all respects, has been chosen. It is entirely free from the manufactories and their smoke; the Manchester South Junction and Altrincham Railway, which is in connexion with all the railways coming into the city, adjoins the plot of ground, so that contributions may be brought into the building without change of carriage, and visitors will be deposited without trouble or extra expense.

There it is hoped to collect in one gallery the pictures of our best modern artists, the choicest specimens of foreign schools, the works of the best sculptors, together with the numerous objects which come under the denomination of fine arts, which are distributed in private houses throughout the country, instead of being found, as on the Continent, in national collections, accessible to the public. The Committee offer every security, and will effect insurances against all risks; the guarantee fund has now reached upwards of £70,000. They will also defray all expenses connected with the transmission of contributions to and from the building.

The catalogue is under the superintendance of Mr. Peter Cunningham.

The following letter from his Royal Highness Prince Albert, to the President of the Manchester Exhibition, was not originally intended for publication, but as it was written in the hope of being useful to the Committee of this undertaking, H.R.H. has condescended to leave it entirely to them to make such use of it as might best serve their purpose:—

"My Dear Lord Ellesmere,—I was very sorry not to see you with the deputation from Manchester that came to me yesterday upon the subject of the exhibition of art treasures which it is proposed to open in that city in May, 1857. Lord Overstone, however, as well as the other members of the deputation, left nothing to desire in explaining the objects which they have in view. I could not fail to admire the public spirit which has prompted the people of Manchester to enter upon so large and magnificent an undertaking.

"We had a good deal of discussion upon its general principles, upon the soundness and fitness of which much of its future success must necessarily depend.

"Manchester enters upon this undertaking at a certain disadvantage. It has been preceded by the Exhibition of 1851—that of Dublin in 1853—and that at Paris during the last year. That a mere repetition of what has thus gone before would fail to attract sufficient notice and public support, appears to have been felt by the committee, and they most wisely gave a distinctive character to their scheme, by making it an exhibition of what may emphatically be called the art treasures of this country. How to succeed in collecting such treasures, fondly cherished as they are by their owners, who are justly jealous of their safety, is the problem to be solved.

"In my opinion, the solution will be found in the satisfactory proof of the *usefulness* of the undertaking. The mere gratification of public curiosity, and the giving an intellectual entertainment to the dense population of a particular locality, would be praiseworthy in itself, but hardly sufficient to convince the owners of works of art that it is their duty, at a certain risk and inconvenience, to send their choicest treasures to Manchester for exhibition.

"That national usefulness might, however, be found in the *educational direction* which may be given to the whole scheme. No country invests a larger amount of capital in works of art of all kinds than England; and in none, almost, is so little done for art education! If the collection you propose to form were made to illustrate the history of art, in a chronological and systematic arrangement, it would speak powerfully to the public mind, and enable, in a practical way, the most uneducated eye to gather the lessons which ages of thought and scientific research have attempted to abstract; and would present to the world, for the first time, a gallery such as no other country could produce, but for which, I feel convinced, the materials exist abundantly in private hands amongst us.

"As far as painting is concerned, I enclose a catalogue exhibiting all the different schools, with the masters who illustrate them, which able hands have compiled for me, and which was communicated to the National Gallery Committee of 1853, and printed by them with the evidence.

"If such a catalogue, for instance, were filled up with the specimens of the best paintings by the different masters enumerated in it, which exist in this country, I feel certain that the committee would come with very different powers of persuasion and a very different claim to attention to their owners, than when the demand for the loan of certain of their pictures were apparently dependent upon mere accident or caprice. A person who would not otherwise be inclined to part with a picture, would probably shrink from refusing it, if he knew that his doing so tended to mar the realisation of a great national object.

"The same principle might be adopted with regard to the other branches of art, extending even into the field of manufacturing industry.

"Whatever may be the decision of the committee, I assure you that it will give me the greatest pleasure to give you any feeble assistance in support which I may be enabled to render. And I may at the same time repeat to you the assurance of the Queen's best wishes for the success of your labours.—Ever yours truly,

"ALBERT.

"Buckingham Palace, July 3, 1856."

WANDSWORTH TRADE SCHOOL.

On Friday, the 4th of July, the annual examination of this school took place. The examiners were Dr. Playfair, C.B., F.R.S., Mr. Edward Hughes, and Mr. Wylde, from the Board of Trade Department of Science and Art, assisted by the Rev. Dr. Booth, F.R.S.

This school was started about two years since, by the exertions of Dr. Booth and several gentlemen of Wandsworth. The object is to give a more useful and practical education to the children of tradesmen and mechanics than they receive in the ordinary schools. The principles of Science and Natural Philosophy, as applied to industrial pursuits, are taught in addition to the usual subjects of School Education.

The examination in chemistry was conducted by Dr. Playfair, and was very satisfactory. The results of the examination in arithmetic and mechanics, though fair, were not so good. Altogether, the attainments of the scholars were proved to be far beyond what had been expected, considering the disadvantages under which the School labours for want of proper school-room accommodation and suitable apparatus for illustrations in Science.

Among the boys who passed their examination creditably may be mentioned, Bingham, Bright, Boorman, Crossman, Kirby, Proud, Savage, Webb, White, and Wright.

The School now contains upwards of 100 boys, who are regularly instructed in the elements of those sciences and in those subjects which bear more directly upon the ordinary affairs of every-day life. It is hoped the efforts now being made to place the School on a permanent basis will be liberally responded to by the inhabitants of the town. It would be a serious injury to allow such an Institution to die after it has been attended with such important results.

On the evening of the same day, a public meeting in connexion with the School was held in the Assembly Room of the Spread Eagle Hotel, Wandsworth. The Right Hon. Lord Ashburton, F.R.S. in the chair.

The Noble Chairman, after apologising for his late attendance, observed that the advantages offered by the Trade Schools were immense. The scholars enjoyed privileges in many respects superior to those possessed by the upper classes of society. They had trained schoolmasters, who were not to be found in many of the superior schools with which he was acquainted. The business of teaching required as much study and preparation as any trade. Seven years was not considered too long an apprenticeship to learn a trade. It required as much time to make a good schoolmaster as it did to make a good shoemaker. It would be as presumptuous in him to attempt to discharge the functions of the one as the other. He knew of what materials his dress was composed, but he was entirely ignorant of the knowledge requisite to put those materials together. Another advantage was the possession of good school-books, composed in accordance with the advanced knowledge of the present day. These were advantages far superior to those which he had enjoyed. He trusted the School would receive the support not merely of its patrons, and of those who canvassed for scholars, but also of those who enjoyed its advantages.

Dr. Playfair said, he had come to inspect the school. As the result of that inspection, he would mention one or two conditions necessary to its improvement. His Lordship had referred to the superior advantages of the education provided by these schools. It was too commonly the case that youths left school as soon as they had learned the alphabet, but they did not know how to form the letters into words. Their education did not embrace instruction in the theory of the work they would have to engage in. They entered life unprepared for its realities, acquired manipulatory knowledge, but remained in perfect ignorance of the principles of their respective trades. It was to supply these wants that these schools had been formed. The ordinary schools did not teach the lad what he wanted before he was removed to earn his own livelihood. If it were found that continuance at school rendered labour more available, the lads would be allowed to remain longer under instruction. The object of these schools was to supply an education supplementary to that of the National schools. They made use of the elementary instruction which had been there imparted, carried it a step further, and turned it to useful and practical purposes. Competition in the present day did not depend upon local advantages, but upon intellect. We were rapidly losing the advantages arising from the possession of coal and iron. Our success must depend on applying scientific principles to the manufacture of the raw material. The principles of these schools could not be carried out unless the instruction commenced where the ordinary schools left off. It was in the hands of the townspeople to make it so. The time of the masters was wasted if lads were admitted who were deficient in elementary knowledge. Every lad admitted ought to read and write well, and be well acquainted with the first four rules of arithmetic. If this school were supported boldly, they could then reject all who were not sufficiently prepared. He hoped this would be done in future. He congratulated them upon the number attending the school. By adopting the course pointed out, though at first it might tend to keep down the numbers, yet ultimately it would increase them and improve the efficiency of the school, while at the same time it would secure the support and co-operation of the National schools. In Bristol they offered scholarships to the most advanced boys. In the course of the afternoon's examination he was satisfied with the acquaintance of the lads with the theory of arithmetic, geography, and chemistry. He, however, found a deficiency, owing to the want of a previous elementary education, in the science of numbers. In Bristol there were admitted in one year sixty-six pupils, and as many were rejected, not being qualified. The result was that the scholars made more rapid progress than the pupils at Wandsworth. Drawing was an important part of education. It cultivated habits of attention and accuracy. It was not here in such a forward state as he hoped it would be next year. This was not the fault of the master, but was owing to a lack of materials. The scholars had a greater knowledge of chemistry than he thought they could have acquired under the circumstances. They were taught abstractedly, —for instance, they answered his questions about sodium although they had never seen it. To teach such sciences effectually they must exhibit experiments; they could not impart instruction effectually by abstractions. Nevertheless, so far, the school had been most decidedly successful. A larger amount of apparatus for illustration was wanted. If the townspeople raised one-third of the requisite outlay, Government would grant the remaining two-thirds. He was aware there had been already heavy demands upon them in starting the school; he was only surprised that they had accomplished so much. He would not have done his duty unless he pointed out to them the deficiencies that existed. He trusted that there would be so much zeal and energy manifested as to ensure success and prosperity for the future.

The Rev. Dr. BOOTH remarked, that he had for many years held these views with reference to education, but had not, till of late, had an opportunity of putting them into practice. He had submitted them to a few friends in the town, who cordially agreed with them. By their liberality and energy the scheme was started. The contributions amounted to upwards of £300. There had gathered round him men of great energy, friends of education, who devoted themselves to the work. If the school should prove to be a failure, it would not be in consequence of the smallness of the attendance at the classes. They in this respect had met with extraordinary success. One hundred pupils were assembled daily, in a contracted tumble-down place, by no means to be desired for its healthy condition. They were the sons of shopkeepers, engineers, artisans, and others, who were not able to obtain elsewhere that kind of education which they required. The promoters of this school wished to impart a better and higher class of education than could be obtained at National or primary schools. The education at some of the middle-class schools, where three, or even four pounds a year was paid, was of a very inferior and unsatisfactory kind. The managers of the school offered an educational boon to the town, and he trusted it would be duly appreciated. They could not continue their operations much longer in their present building; they required new and suitable premises. A lady of the town had placed at their disposal a site, upon very advantageous terms. It was for them to determine whether the school should continue or whether it should cease. The Committee had made themselves responsible to some extent. It was now for the people of Wandsworth to say whether they would prize the boon, or whether, educationally, their last state should be worse than their first.

Dr. LONGSTAFF observed, that he was gratified with the amount of success which had attended the labours of the Committee. The inhabitants felt interested in educational movements. The room in which they were then assembled was, week after week, crowded at literary and scientific lectures. He had no doubt that Dr. Playfair's suggestion would as speedily as possible be carried into effect.

The Rev. H. SOLLY moved, that the cordial thanks of the meeting be presented to the Rev. Dr. Booth, for the labour and energy he has bestowed in establishing and carrying on the Trade School. He said that he well remembered the classical education formerly given, and how remarkably deficient it was in imparting a knowledge of those things with which men had to deal in after life. It was very elevating, it was true, but it was very sad to consider that it should supersede other equally, if not more, important education. Young men formerly went out into life ignorant of what the children of National and Infant Schools were now well acquainted with. He had hoped that evening to have heard his lordship speak, as on former occasions, about "common things." It was a duty to make all good things common. Many mistakes were made by the country and by statesmen owing to a want of this knowledge of "common things." Their sisters in former times were receiving a much better education than they themselves. He did not know much about this particular school. He should like to ascertain the precise manner in which practical knowledge was imparted, and how the education was made so valuable that parents could be induced to allow their sons to remain a longer time in the school. One of the strongest stimuli to education had been the throwing open Government situations to competition. He trusted that all civil situations would be thrown open in like manner, from the lowest grade to the most exalted position. It would raise the character of the education imparted in the schools throughout the country.

Dr. PLAYFAIR seconded the resolution, and said that the Wandsworth Trade School was the first of the kind established in the kingdom, and could now boast of being the parent of twelve lusty sons in the Provinces. Unless the parent school was supported liberally, the children would speedily outgrow it. Some of these schools were no doubt surrounded by a more numerous affluent population, and were, therefore, able to insist more strenuously upon the conditions of admission. The Trade School at Poplar only admitted lads who were duly qualified. The requirements of the district were considered, and the following branches of study accordingly taught:—Navigation, Shipbuilding, Building, Engineering, and Chemistry. They imparted general instruction first, and then made it apply more especially to some particular branch of trade. The result of their labours had been the formation of an adult school, which had been found so beneficial and attractive, that during the hot months of summer seventy-six persons crowded themselves into an apartment made to accommodate only fifty. Adult persons too frequently wished to select their own studies; this was by no means to be desired, and it was for their benefit that they must always be confined to the peculiar subjects taught in these schools. Firmness, in this respect, would be found ultimately highly beneficial and advantageous. The course in Edinburgh consisted of Arithmetic, Mechanics, Natural Philosophy, and Chemistry. Annually some 600 or 700 persons passed through this course of study. If similar firmness and perseverance were evinced at Wandsworth, not only would the boys, but the parents also, would value and appreciate the education imparted. The scholars would be more highly valued and remunerated than other workmen, and the school would thus be correspondingly appreciated.

Mr. Martin Blackmore expressed his willingness to contribute his share towards the support of the schools.

Mr. Lovel Reeve thought it a difficult matter to work out Dr. Booth's plans in the obscure town of Wandsworth. The School was not sufficiently well-known; would it not supersede the National Schools?

The Rev. Dr. Booth replied that this School was not to interfere with the National or other schools; it was to be supplementary to them. They had received only three pupils from the National School. The Committee of Privy Council on Education thought so highly of the School, that they had made an offer to the Managers, which was embodied in a notice which they had issued, and which he would read:—

> "Notice is hereby given, that a Competitive Examination will be held in November next, at the Trade School, Wandsworth, by Her Majesty's Inspector of Schools, to admit seven boys to receive as exhibitioners a free education for the space of three years in the said Trade School.
>
> "Candidates who are being, or who have been educated at a national or other school in the county of Surrey under Government inspection, and who have completed their tenth, but not their fourteenth year, are admissible.
>
> "They must produce a certificate of age and of good conduct from their last teacher, and from the managers of their school, or from some respectable householder, if they are not now at school.
>
> "The Examination will be held in Reading, Writing, and in the Elements of Grammar, Composition, Arithmetic, and Geography."

The Wandsworth Trade School was thus made a kind of University to the other schools of Surrey.

Mr. Robert Wilson moved a vote of thanks to their noble Chairman, which was seconded by Mr. C. Corthorn, and carried by acclamation.

The Noble Chairman in returning thanks said, it only needed to create a demand, and Saxon energy would speedily furnish a supply. There was no natural hunger and thirst for knowledge. When the working-classes could be induced to appreciate the education supplied in these schools, the means would be so abundant as to remunerate the teachers and support the school. There was one regulation which he thought militated against the prosperity of the school. That was, a different scale of prices for the rich and poor. There was no objection in principle, but it had got into men's heads that these institutions were founded for the benefit of the rich, and not for the poor. They ought to do everything possible to remove this idea. The Committee had no reason for discouragement; they were going slowly up hill, and doubtless they would soon meet with all the support they needed.

The noble lord then vacated the chair, and the meeting terminated.

Home Correspondence.

MR. HAWES'S THEORY OF SAPONIFICATION.

Sir,—I regret much that want of leisure prevents my answering the letter of Mr. Jennings so fully as I could wish, but I am constrained to make one or two remarks concerning some of the observations he made in commenting upon my letter in connection with Mr. Hawes's saponification theory.

Now, Mr. Jennings has somewhat fully discussed certain chemical facts which I adduced, and likewise quoted M. Chevreul pretty freely. It is a great pity that before so doing he did not at least make himself acquainted with one most important point, of which he is most lamentably ignorant, viz., *the constitution of stearine*, for he says in his letter "it is impossible to admit the glycerine as an element *in stearine*, whatever we may infer as to tallow." Mr. Jennings will excuse my entering into any further controversy with him upon the theory of saponification after an assertion so absurd, displaying as it does a total ignorance of the whole subject, and an utter misconception of the entire matter under consideration in my letter.

One more remark and I have done. Mr. Jennings, with his pretensions to soap-making knowledge, should be aware that the term *gelatinous matters* I alluded to is what is understood in a practical sense, and does not apply to the animal substance which he has thought proper to identify with my expression.

I beg to conclude with a recommendation to Mr. Jennings to study the nature of stearine, palmatine, and the analogous fatty bodies in the writings of the eminent chemist, who, as I before said, he quotes so glibly, ere he again plunges into antagonism upon these matters. Then, I think, he will not fail soon to discover the chemical fact that stearine and stearic acid are not identical.

I am, &c.,

ALFRED ANDERSON, F.C.S.

Soap Works, Southwark, 9th July, 1856.

Proceedings of Institutions.

Manchester.—The Directors of the Manchester Mechanics' Institution propose to inaugurate their new building with an Exhibition illustrative of the fine arts, antiquities, scientific inventions, raw materials, industrial products, machinery at rest and in motion, and comprising selections from mechanical employments in actual operation. The floor space in the building, applicable to the purposes of the Exhibition, exceeds 21,000 square feet, with the additional accommodation afforded by the walls for the display of paintings, engravings, &c. With this space at their disposal, and with the experience the directors possess, of the successful working of similar exhibitions in this Institution, they confidently hope to collect materials, and arrange an Exhibition which will sustain the reputation of the Institution, and be not only an object of general attraction, but an important educational instrument throughout the densely populated district of which Manchester is the centre. To aid them in this undertaking, the directors earnestly solicit the loan of objects suitable for exhibition, and also the valuable assistance which may be rendered by suggestions and friendly co-operation. The surplus fund arising from the Exhibition will be devoted to the reduction or liquidation of the debt remaining on the new building after its completion. The carriage of articles to and from Manchester selected for exhibition will be paid by the directors. An insurance will be effected on the building and its contents, and care will be taken to return uninjured the property of contributors. Already the directors have had the promise of contributions from the East India Company, and from numerous leading manufacturers and others. The new building is now rapidly approaching completion, and it is proposed to open the Exhibition in the autumn of 1856. Those gentlemen who are willing to assist the Board by the loan of any of the objects for exhibition should communicate as early as possible with the President of the Institution, Mr. Oliver Heywood, or with the Secretary, Mr. E. Hutchings.

To Correspondents.

Erratum.—In last number, p. 575, col. 1, line 10, for "Telkin" read "Felkin."

PATENT LAW AMENDMENT ACT.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

[*From Gazette July 4th*, 1856.]

Dated 14th May, 1856.

1135. William Pollock, Paisley—Improvements in the treatment or manufacture of ornamental fabrics of the lappet class.

Dated 15th May, 1856.

1149. James Young Simpson, M.D., Edinburgh, and Professor Wyville Thomson, Belfast—Improvements in the manufacture or production of lubricating oil from a new material.

1151. Robert Foulds and William Bracewell, Barnoldswick—Certain improvements in power looms, constructed on what is called the loose reed principle.

Dated 2nd June, 1856.

1297. Henry Cartwright, The Dean, Brosely—Improvements in the application of steam cocks to steam engines, and in working such engines thereby.

Dated 3rd June, 1856.

1323. François Auguste Verdeil, M.D., 30, Rue St. Sulpice, Paris—Improvements in obtaining a particular green colouring matter from artichokes and thistles.

Dated 7th June, 1856.

1359. William Denny Ruck, Topping's-wharf, and Victor Touche, 14, Rathbone-place, Oxford-street—Improvements in the manufacture of paper from fibres not hitherto applied to such purpose.

Dated 10th June, 1856.

1377. Carlo Pietroni, London-wall—Improvements in printing on cloth and other fabrics. (A communication.)

Dated 19th June, 1856.

1445. William Hunt, Tonge, near Middleton—Certain improvements in machinery or apparatus for polishing and finishing yarns or threads.

1444. Guilford Lindsay Molesworth, 13, Beaufort-buildings, Strand—An improved pendent child's cot.

1446. George Pye, Ipswich—An improvement in preparing silk.

1448. William Parsons, 18, Pratt-street, Old Lambeth—Improvements in washing and bleaching woven fabrics.

Dated 20th June, 1856.

1451. Edward Henry Cradock Monckton, Bengal Civil Service, and 77, Chancery-lane—Improvements in pianofortes.

1452. John Talbot Pitman, 67, Gracechurch-street—A new method of using the electric current or currents for telegraphic and other purposes. (A communication.)

1453. James Bullough, Accrington—Improvements in looms.

1455. Jonathan Hague, Ashton-under-Lyne—Improvements in machinery or apparatus for manufacturing bands or cords for driving machinery and other purposes.

1456. Michael Thomas Crofton, Leeds—An apparatus for inking stamps used by bankers and others.

1457. Henry Pigott, Glasgow—Improvements in hats and other coverings for the head.

1458. Stopford Thomas Jones, Royal Circus-street, Greenwich, and Josiah Harris, Dolgelly—An amalgamating machine to extract gold and silver, and to separate iron from crushed mineral ores in water.

Dated 21st June, 1856.

1459. Joseph Bennett Howell, Sheffield—Improvements in the manufacture of cast steel tyres.

1460. Emile Ventré, Paris—An improved carton or box for keeping papers or other articles.

1461. George Davies, 1, Serle-street, Lincoln's-inn—Improvements in apparatus for measuring and indicating the leakage of vessels. (A communication.)

1462. Elias Robison Handcock, 16, North Frederick-street, Dublin—Certain improvements in mechanism connected with engines to be worked by steam or other motive power.

1463. William Armand Gilbee, 4, South-street, Finsbury—Improvements in locomotion on railroads, part of which improvements are also applicable to ordinary roads. (A communication.)

1464. Charles Minne and Amand Colson, Brussels—Improvements in making bread.

Dated 23rd June, 1856.

1465. William Valentine Miller, Portsmouth—Improvements in propelling vessels.

1466. Jean Charles Lefevere Lacroix, Heutrégiville (Marne), France—Filthing and shaving the merino, plain satin, and muslin of wool.

1467. James Johnson and William Blackwell, Ashton-under-Lyne—Certain improvements in self-acting mules for spinning.

1468. Goldsworthy Gurney, Bude, Cornwall—Certain improvements for warming and moistening air.

1469. Robert Roger, Stockton—Improvements in machinery employed for the cultivation of land.

1470. James Atkinson Longridge, 17, Fludyer-street, Westminster—Improvements in obtaining and applying motive power for the conveyance of minerals, pumping, and other purposes in mines in which motive power is required.

1471. George Riley, 1, The Grove, Lambeth—An improved refrigerator for cooling brewers' and distillers' worts.

1472. John Miller, Drogheda, Ireland—Improvements in furnaces for more effectually consuming the smoke, and economizing the fuel employed therein.

1473. Henry Hussey Vivian, Bernhardt Gustav Hermann, and William Morgan, Hafod Works, Swansea—Improvements in the manufacture of copper, and in obtaining gold and silver from the ores employed in such manufacture.

1474. George Dyson, Tudhoe Iron Works, Durham—Improvements in the manufacture of iron.

1475. Isaac Atkin and Marmaduke Miller, Nottingham—Improvements in machinery for sewing lace and other fabrics.

1476. Charles Mills, 8, High-street, Camden-town—An improvement in the hammer rails of pianofortes.

Dated 24th June, 1856.

1477. Edwin Hardon and Joseph Henry, Stockport—Improvements in looms for weaving, and in machinery for communicating motion to looms and other machines.

1478. John Taylor, Hackney-road—An improved vessel for containing chemicals for the generation of disinfecting gases.

1479. John Saxby, Brighton—A mode of working simultaneously the points and signals of railways at junctions to prevent accidents.

1480. David Davies, Wigmore-street, Cavendish-square—Improvements in wheel tyres.

1481. Joseph Harrison, Blackburn, and Christopher Gelderd, Lowmoor, Clitheroe—Improvements in machines for warping and sizeing, or otherwise preparing yarns or threads for weaving.

1483. John Henry Johnson, 47, Lincoln's-inn-fields—Improvements in railway breaks. (A communication.)

1484. Leonard Bower, Birmingham—An improvement or improvements in the manufacture of bolts, rivets, spikes, screw blanks, nuts for screws, and washers.

1485. Samuel Sinclair Robson, 45, West-street, Gateshead—Improvements in railway and other carriage breaks.

1486. Abraham Pope, Edgware-road—Improvements in the manufacture of steel.

1487. Jules Etienne Lafond, Belleville, near Paris—Improvements in lighting.

1488. Alfred Vincent Newton, 66, Chancery-lane—An improved construction of life boat. (A communication.)

Dated 25th June, 1856.

1489. Charles Durand Gardissal, 10, Bedford-street, Strand—Improvements in engraving glass and crystals. (A communication.)

1491. Michael Allen, 39, Cavendish-grove, Wandsworth-road—An improvement in arranging and working the slide valves of steam engines.

1493. George Armstrong Bates, Wigan—Improvements in apparatus for the prevention of accidents in ascending and descending shafts of mines.

1495. Robert Wilson Chandler, Bow, and Thomas Oliver, Hatfield—Improvements in engines employed for agricultural purposes.

1497. Jules Henri Etienne Mareschal, Paris—Improvements in hydraulic presses.

1499. James Kenyon and Richard Kenyon, Bury—An improved fabric to be used in printing and other similar purposes, and a method of joining or connecting the ends of the same.

WEEKLY LIST OF PATENTS SEALED.

Sealed July 4th, 1856.

48. Joseph Corbett.
52. Charles Jarvis and Thomas Deykin Clare.
66. George John Christian Erhard Hald.
69. William Barrie.
70. Edward Hallen and William Holland Kingston.
71. John Ashworth.
77. Martin Billing and Frederick Augustus Harwood.
110. Thomas Hill Bakewell.
130. Joseph Jesse Comstock.
162. Pierre Lewis Tieffé-Lacroix.
163. Jean Baptiste Pierre Alfred Thierry, jun., Jean Louis Richard, and Baron Henry de Martiny.
225. Jean Baptiste Jules Hyppolite d'Auvergne.
226. Pierre Samain.
261. Henry Tylor.
518. John Brierley.
899. Edmund Richard Southby.
934. Josiah George Jennings.
1045. Henry Edward Brown.

Sealed July 8th, 1856.

80. Jane Ann Herbert.
111. Thomas Dunn.
115. Vincent Scully and Bennett Johns Heywood.
125. Philip Rechten.
131. John Platt and John Whitaker.
173. Henry Elliott Hoole.
200. John Kershaw.
242. Henry Chance.
245. Abraham Pope.
247. Robert Walter Winfield.
253. Thomas Fewster Wilkinson.
255. John Gretton.
274. Francis Preston.
277. Peter Armand le Comte de Fontainemoreau.
309. Thomas Hinchliffe.
329. James Meacock.
404. William Wilcocks Sleigh.
427. James Knowles.
611. Grand de Chateauneuf.
632. Joseph Pegg.
740. William Frederick Thomas.
833. Frederick George Underhay.
903. William Routledge.
953. William Maugham.
1067. Thomas Huckvale.
1096. Edward Daniel Johnson.
1108. James Wallace.
1109. Robert Wotherspoon.

Patents on which the Third Year's Stamp Duty has been Paid.

July 1st.

1613. Thomas William Kennard.

July 2nd.

1611. William Woods Cook.
1636. Ewald Riepe.
1637. Ewald Riepe.

July 3rd.

1615. Robert Anderson Rust.

July 4th.

1631. Stephen Martin Saxby.

July 5th.

1603. Alfred Vincent Newton.